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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/907,228	07/17/2001	Richard A. Meyer	M93.12-0254	6314

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EXAMINER

MACK, COREY D

ART UNIT	PAPER NUMBER
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2855

DATE MAILED: 05/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/907,228

Applicant(s)

MEYER ET AL.

Examiner

Corey D. Mack

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6-14 is/are rejected.
- 7) ☒ Claim(s) 4, 5 and 15-23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 6, 8 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Shull et al. (US 3,618,376). Shull et al. (US 3,618,376) disclose in Fig. 1-7 a the load cell body comprising: an integral assembly 10 having: a first ring member 14 and a second ring member 16, each ring member having a central aperture 26 centered on a reference axis (Claim 1); at least three tubes 18, 20, 22, 24 extending from the first ring member to the second ring member parallel to the reference axis Z (Claim 1); tension/compression sensors S_{1-32} mounted on selected tubes (Claims 2 and 3); a mounting hub 41 including a first annular rim 44 joined to the first ring member, a second annular rim 42 including a plurality of bores extending there through and a cylindrical support extending between the first annular rim and the second annular rim (Claim 6); an outer surface of each tube 18, 20, 22, 24 includes a plurality of opposed surfaces and wherein the sensors S_{1-32} are mounted to the opposed surfaces (Claim 8); a first pair of surfaces facing in opposite directions and a second set of surfaces facing in opposite directions, the second set of surfaces being substantially orthogonal to the first set of surfaces such that the surfaces of the first set and the second set are alternately disposed about each corresponding longitudinal axis and wherein the sensors are mounted to the surfaces of the first and second sets of surfaces (column 4, lines 36-67) (Claim 9); each of the opposed surfaces is planar (column 2, lines 63-

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66); and, the first shear sensing circuits of each of said adjacent pair of tubes are electrically coupled to provide an output signal, and wherein the second axial tension/compression sensing circuits of each of said adjacent pair of tubes are electrically coupled to provide an output signal (column 4, line 8 – column 5, line 36).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7 and 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shull et al. (US 3,618,376). Shull et al. (US 3,618,376) a the load cell body comprising: an integral assembly 10 having: a first ring member 14 and a second ring member 16, each ring member having a central aperture 26 centered on a reference axis; at least three tubes 18, 20, 22, 24 extending from the first ring member to the second ring member parallel to the reference axis Z; tension/compression sensors S_{1-32} mounted on selected tubes; a mounting hub 41 including a first annular rim 44 joined to the first ring member, a second annular rim 42 including a plurality of bores extending there through and a cylindrical support extending between the first annular rim and the second annular rim; an outer surface of each tube 18, 20, 22, 24 includes a plurality of opposed surfaces and wherein the sensors S_{1-32} are mounted to the opposed surfaces; a first pair of surfaces facing in opposite directions and a second set of surfaces facing in opposite directions, the second set of surfaces being substantially orthogonal to the first set of surfaces such that the surfaces of the first set and the second set are alternately disposed about each

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corresponding longitudinal axis and wherein the sensors are mounted to the surfaces of the first and second sets of surfaces (column 4, lines 36-67); each of the opposed surfaces is planar (column 2, lines 63-66); and, the first shear sensing circuits of each of said adjacent pair of tubes are electrically coupled to provide an output signal, and wherein the second axial tension/compression sensing circuits of each of said adjacent pair of tubes are electrically coupled to provide an output signal (column 4, line 8 – column 5, line 36). However, they do not disclose eight, non-rectangular or octagonal tubes. While Shull et al. (US 3,618,376) does not explicitly disclose these features it does disclose plural columns 18, 20, 22, 24 arranged geometrically around the rings 14, 16 having the claimed sensor arrangement. With regards to Claim 10, it would have been within the knowledge of one of ordinary skill in the art to use multiple columns, including eight, in order to increase the sensitivity of the measurements. With regards to Claims 7 and 12, it would have also been within the knowledge of one of ordinary skill in the art to use non-rectangular or octagonal columns in order to appropriately distribute the forces around the columns. Therefore, at the time the invention was made, it would have been within the knowledge of one of ordinary skill in the art to include in Shull et al. (US 3,618,376) eight, non-rectangular or octagonal tubes in order to more accurately measure load on a load-measuring cell.

Allowable Subject Matter

5. Claims 4, 5 and 15-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Response to Arguments

6. Applicant's arguments filed 17 March 2003 have been fully considered but they are not persuasive. Applicant argues that the cited prior art fails to disclose "tubes" having a hollow center portion. Applicant asserts that the columns disclosed by the prior art are solid structures and cannot be considered "tubes". However, on a careful reading of the reference there is no teaching of a "solid structure". As understood by one of ordinary skill in the art, a column could be a tube or hollow structure. As a result, there is no support for the columns disclosed by the prior art to be construed as only solid structures. Therefore, the rejection is reasserted.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sommerfeld, et al. (US 5,969,268) discloses a multi-axis load cell having hollow tubes.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Corey D. Mack whose telephone number is (703) 305-3424. The examiner can normally be reached on M-F, 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (703) 305-4816. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 308-1782 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3431.



Corey D. Mack, Esq.
Patent Examiner
Art Unit 2855

May 12, 2003



EDWARD LEFKOWITZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800